

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) An acid liquid leakage sensor comprising:
a first conductive member;
a second conductive member; and
an electrically insulating material ~~which establishes an~~ electrically insulating
~~state between~~ said first conductive member ~~and~~ from said second conductive member,
wherein

said electrically insulating material includes a macromolecular
compound having a basic functional group,

said electrically insulating material reacts with and is ~~dissolved in~~
soluble in a liquid acid, ~~said electrically insulating material has an electrical insulating~~
~~characteristic such that~~ and the electrical insulation between said first conductive
member and said second conducting member provided by said electrically insulating
material decreases upon reaction with at least partial dissolution of said electrically
insulating material in the liquid acid, and

said macromolecular compound is a radically polymerized polymer
containing repeating units derived from a monomer component having a basic
functional group, and said monomer component includes at least 10% of all of the
repeating units of said macromolecular compound.

2. (Previously Presented) The acid liquid leakage sensor of Claim 1, wherein
said macromolecular compound has a glass transition temperature, T_g, of at least
40°C.

Claims 3 and 4 (Cancelled).

5. (Previously Presented) The acid liquid leakage sensor of Claim 1, wherein said electrically insulating material includes at least 10% of an extender.

6. (Original) The acid liquid leakage sensor of Claim 5, wherein said extender includes a metallic carbonate.

7. (Currently Amended) ~~The~~ An acid liquid leakage sensor ~~of Claim 1~~ comprising:

a first conductive member;

a second conductive member; and

an electrically insulating material electrically insulating said first conductive member from said second conductive member, wherein

said electrically insulating material includes a macromolecular compound having a basic functional group,

said electrically insulating material reacts with and is soluble in a liquid acid, and the electrical insulation between said first conductive member and said second conducting member provided by said electrically insulating material decreases upon at least partial dissolution of said electrically insulating material in the liquid acid,

said macromolecular compound is a radically polymerized polymer containing repeating units derived from a monomer component having a basic functional group,

said second conductive member is made from a substance having an ionization tendency different from the ionization tendency possessed by the substance from which said first conductive member is made, and

when the electrical insulation characteristic of said electrically insulating material decreases, an electromotive force, which is generated between said first conductive member and said second conductive member, is detected.

8. (Currently Amended) ~~The~~ An acid liquid leakage sensor of Claim 1
comprising:

a first conductive member;

a second conductive member; and

an electrically insulating material electrically insulating said first conductive
member from said second conductive member, wherein

said electrically insulating material includes a macromolecular
compound having a basic functional group,

said electrically insulating material reacts with and is soluble in a liquid
acid, and the electrical insulation between said first conductive member and said
second conducting member provided by said electrically insulating material decreases
upon at least partial dissolution of said electrically insulating material in the liquid
acid.

said macromolecular compound is a radically polymerized polymer
containing repeating units derived from a monomer component having a basic
functional group.

said first conductive member is a first comb shaped electrode which comprises
a common electrode member and a plurality of fine electrode members which extend
from the common electrode member; and

said second conductive member is a second comb shaped electrode which
comprises a common electrode member and a plurality of fine electrode members
which extend from the common electrode member and are disposed between said fine
electrodes of said first comb shaped electrode.

9. (Previously Presented) The acid liquid leakage sensor of Claim 8, wherein
said first comb shaped electrode and said second comb shaped electrode are spaced
apart by a gap which is at least 0.5 mm and no more than 8 mm.

10. (Previously Presented) The acid liquid leakage sensor of Claim 1, wherein said first and second conductive members are a printing material in which a metallic material selected from zinc, copper, iron, aluminum, tin, nickel, and magnesium, or a powder of said metallic material, is mixed with a resin which becomes a binder.

11. (Previously Presented) The acid liquid leakage sensor of Claim 1, further comprising notification means which operates by electrical conduction between said first conductive member and said second conductive member.

Claims 12 and 13 (Cancelled).

14. (Previously Presented) The acid leakage sensor of Claim 7, further comprising notification means which operates by the electromotive force between said first conductive member and said second conductive member.

15. (New) The acid leakage sensor of Claim 1, wherein the basic functional group is selected from the group consisting of amino groups, methylol amino groups, dimethyl amino groups, and diethyl amino groups.